

What is claimed is:

1. A method of reducing noise audible from a speaker, the method comprising:
  - 5 a) producing a control signal indicating whether or not audio program content is imminent in an audio signal operable to be transmitted to a speaker; and
  - b) transmitting said control signal, for use by a speaker controller operable to provide a speaker drive signal to said speaker in response to said audio signal and said control signal.
- 10 2. The method of claim 1 wherein producing comprises receiving an audio status signal indicating a change in audio program content from an audio device.
- 15 3. The method of claim 2 wherein producing comprises setting said control signal active in response to at least one audio status signal indicating a change from no audio content contribution to an audio content contribution by an audio device.
- 20 4. The method of claim 3 wherein producing comprises incrementing a counter value in response to said audio status signal.
5. The method of claim 4 wherein producing comprises maintaining said control signal active while said counter value is greater than a predetermined value.
- 25 6. The method of claim 5 wherein producing comprises decrementing said counter value in response to said audio status signal.
7. The method of claim 6 wherein producing comprises setting said control signal inactive when said counter value is equal to said predetermined value.

8. The method of claim 7 wherein setting comprises writing to a register in control of the state of said control signal.

9. The method of claim 2 wherein receiving comprises receiving a function call from a computer program.

10. The method of claim 9 wherein receiving comprises receiving said function call at a component of an operating system.

11. The method of claim 10 wherein producing comprises invoking a function of said operating system.

12. The method of claim 1 further comprising controlling the operation of a digital to analog converter operable to produce said audio signal, in response to said control signal.

13. The method of claim 12 wherein controlling the operation of said digital to analog converter comprises controlling an input to said digital to analog converter in response to said control signal.

14. The method of claim 1 wherein producing comprises setting said control signal in response to user input.

15. The method of claim 14 wherein setting comprises setting said control signal in response to a command executed in response to user input.

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16. An apparatus for reducing speaker noise, the apparatus comprising:  
a) a control signal generator operable to produce a control signal indicating whether or not audio program content is imminent in an audio signal operable to be transmitted to a speaker; and  
b) a transmitter operable to transmit said control signal for use by a speaker controller operable to provide a speaker drive signal to said speaker, in response to said audio signal and said control signal.

17. The apparatus of claim 16 wherein said control signal generator is operable to receive an audio status signal indicating a change in audio program content from an audio device.

18. The apparatus of claim 17 wherein said control signal generator is operable to set said control signal active in response to at least one audio status signal indicating a change from no audio content contribution to an audio content contribution by an audio device.

19. The apparatus of claim 18 wherein said control signal generator comprises a counter having a counter value which is incremented in response to said audio status signal indicating a change from no audio content contribution to an audio content contribution by an audio device.

20. The apparatus of claim 19 wherein said control signal generator is operable to maintain said control signal active while said counter value is greater than a predetermined value.

21. The apparatus of claim 20 wherein said counter value is decremented in response to said audio status signal.

22. The apparatus of claim 21 wherein said counter causes said control signal to be rendered inactive when said counter value is equal to said predetermined value.

23. The apparatus of claim 22 further comprising a register in communication with said counter, for controlling the state of said control signal.

5 24. The apparatus of claim 17 wherein said control signal generator comprises a processor circuit operable to execute a first block of instructions to cause said processor circuit to act as said control signal generator in response to said audio status signal.

10 25. The apparatus of claim 24 wherein said first block of instructions includes instructions forming part of an operating system of said processor circuit.

15 26. The apparatus of claim 16 further comprising a digital to analog converter operable to produce said audio signal in response to said control signal.

20 27. A method of reducing speaker noise, the method comprising:  
a) receiving a speaker drive signal for use by a speaker;  
b) receiving a control signal indicating whether or not audio program content is imminent in said speaker drive signal; and  
c) providing said speaker drive signal to said speaker, in response to said control signal indicating audio program content is imminent and ceasing to provide said speaker drive signal in response to said control signal indicating that audio program content is not imminent.

25 28. The method of claim 27 wherein providing comprises connecting an output of an audio amplifier to said speaker.

30 29. The method of claim 28 wherein ceasing comprises disconnecting said output of said audio amplifier from said speaker.

30 30. The method of claim 28 further comprising amplifying said audio signal to produce said speaker drive signal.

31. The method of claim 27 further comprising activating a switch to permit said speaker drive signal to be received at said speaker, in response to said control signal indicating audio program content is imminent.

5 32. The method of claim 31 further comprising deactivating said switch to prevent said speaker drive signal from being received at said speaker.

10 33. An apparatus for reducing speaker noise, the apparatus comprising:

- a) a first input operable to receive a speaker drive signal;
- b) a second input operable to receive a control signal indicating whether or not audio program content is imminent in said speaker drive signal; and
- c) a controller operable to provide said speaker drive signal to said speaker in response to said control signal indicating that audio program content is imminent and for ceasing to provide said speaker drive signal to said speaker in response to said control signal indicating that audio program content is not imminent.

15 34. The apparatus of claim 33 wherein said controller includes a switch activated by said control signal to connect and disconnect said first input to said speaker.

20 35. The apparatus of claim 34 wherein said switch includes a relay energized in response to said control signal indicating that audio program content is imminent and de-energized in response to said control signal indicating that audio program content is not imminent.

25 36. A computer readable medium for providing instructions for directing a processor circuit to:

- a) produce a control signal indicating whether or not audio program content is imminent in an audio signal operable to be transmitted to a speaker; and
- b) cause said control signal to be transmitted, for use by a speaker controller operable to provide a speaker drive signal to said speaker in response to said audio signal and said control signal.

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37. An apparatus for reducing noise audible from a speaker, the apparatus comprising:

- a) means for producing a control signal indicating whether or not audio program content is imminent in an audio signal operable to be transmitted to a speaker; and
- b) means for causing said control signal to be transmitted, for use by a speaker controller operable to provide a speaker drive signal to said speaker in response to said audio signal and said control signal.

38. An apparatus for reducing speaker noise, the apparatus comprising:

- a) means for receiving a speaker drive signal for use by a speaker;
- b) means for receiving a control signal indicating whether or not audio program content is imminent in said speaker drive signal; and
- c) means for providing said speaker drive signal to said speaker, in response to said control signal indicating audio program content is imminent and ceasing to provide said speaker drive signal in response to said control signal indicating that audio program content is not imminent.

39. A system for reducing speaker noise, the system comprising:

- a) an audio signal producing apparatus comprising:
  - i) a control signal generator operable to produce a control signal indicating whether or not audio program content is imminent in an audio signal operable to be transmitted to a speaker; and
  - ii) a transmitter operable to transmit said control signal for use by a speaker controller operable to provide a speaker drive signal to said speaker, in response to said audio signal and said control signal; and
- b) a speaker controller comprising:
  - i) a first input operable to receive a speaker drive signal;
  - ii) a second input operable to receive a control signal indicating whether or not audio program content is imminent in said speaker drive signal; and

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iii) a controller operable to provide said speaker drive signal to said speaker in response to said control signal indicating that audio program content is imminent and for ceasing to provide said speaker drive signal to said speaker in response to said control signal indicating that audio program content is not imminent.

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40. An apparatus for reducing speaker noise, the apparatus comprising:  
15 a computer including a processor and memory;  
20 an operating system in the memory for creating commands for controlling operation of audio devices connected to the computer;  
25 a control signal generator responsive to at least one of the commands for producing a control signal indicating whether audio program content is imminent in an audio signal from an audio device; and  
30 a speaker controller connected to a speaker, to the computer and to an audio device, the speaker controller being responsive to the control signal for providing a speaker drive signal to the speaker when audio program content is imminent in the audio signal from the audio device.

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41. The apparatus of claim 40 wherein said control signal generator is further comprises first means responsive to at least one of the commands indicating a change from no audio content contribution to an audio content contribution by an audio device to set the control signal active.

42. The apparatus of claim 40 wherein said control signal generator comprises a counter having a counter value which is incremented in response to at least one of the commands indicating a change from no audio content contribution to an audio content contribution by an audio device.

43. The apparatus of claim 42 wherein the control signal generator is operable to maintain the control signal active while the counter value is greater than a predetermined value.

44. The apparatus of claim 43 wherein the counter value is decremented in response to at least one of the commands indicating that audio program content is not included in an audio signal from an audio device.

5 45. The apparatus of claim 44 wherein the counter causes the control signal to be inactive when the counter value is equal to the predetermined value.

10 46. The apparatus of claim 45 further comprising a register in communication with the counter, for controlling the state of the control signal.

15 47. The apparatus of claim 40 wherein the control signal generator comprises a first block of instructions executable by the processor to produce the control signal indicating whether audio program content is imminent in an audio signal from an audio device to be transmitted to the speaker..

20 48. The apparatus of claim 47 wherein said first block of instructions includes instructions forming part of the operating system.

49. The apparatus of claim 40 further comprising a digital to analog converter operable to produce from at least one audio signal from an audio device in response to said control signal, an analog audio signal suitable for amplification into the speaker drive signal.